

No. 689,161.

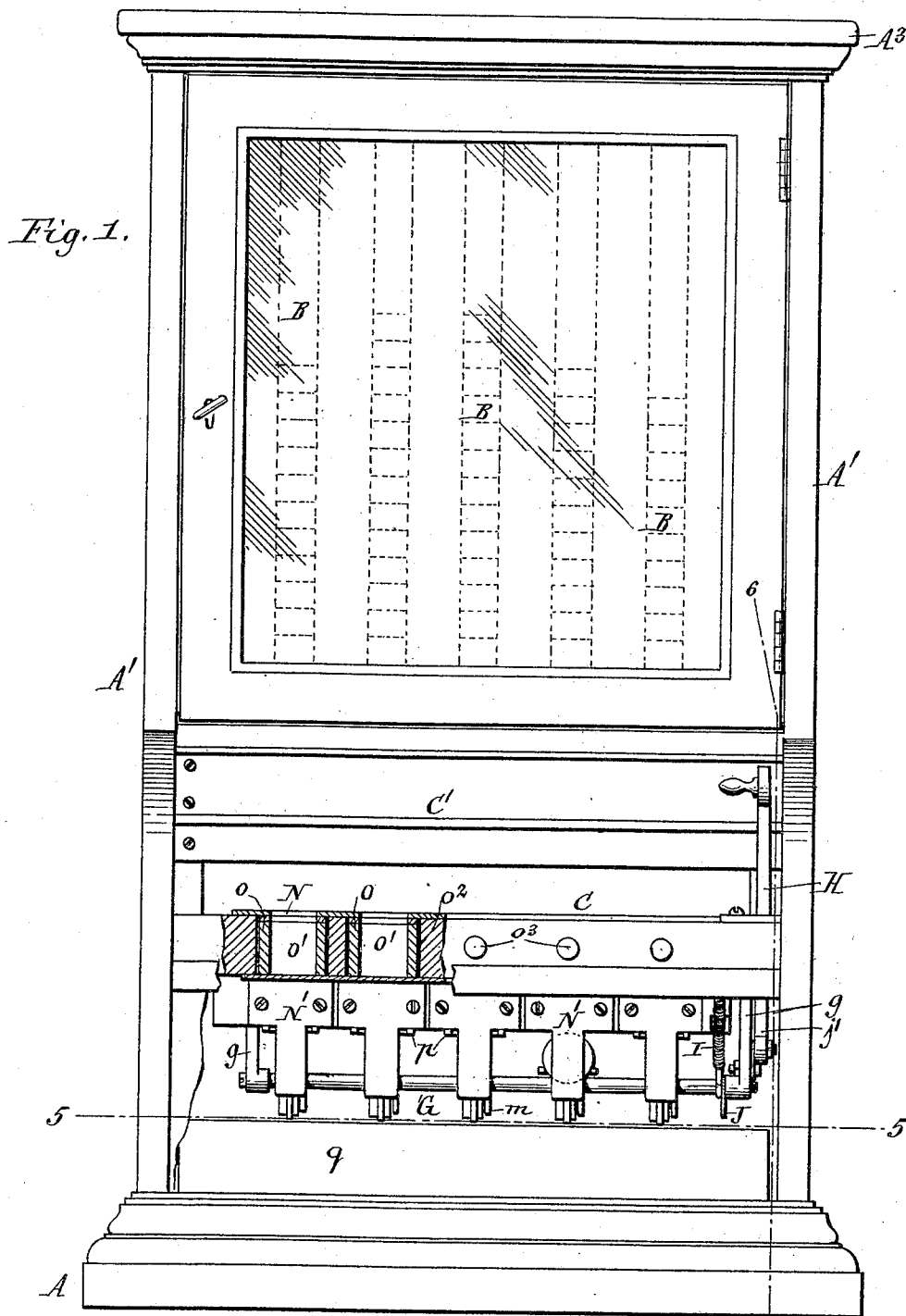
Patented Dec. 17, 1901.

D. A. A. BUCK.
COIN CONTROLLED VENDING MACHINE.

(Application filed Jan. 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.



C. A. Volk.
F. F. Scherzinger. } Witnesses.

6

Daniel A. A. Buck Inventor
By Wilhelm H. Bremer
Attorneys

No. 689,161.

Patented Dec. 17, 1901.

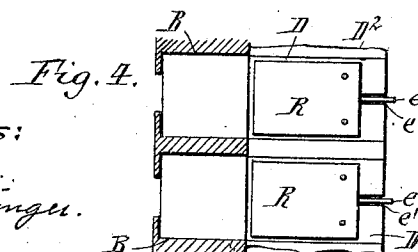
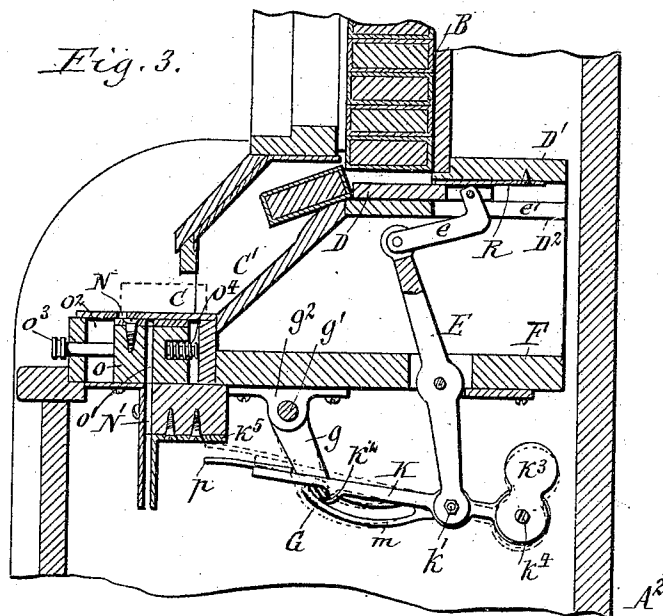
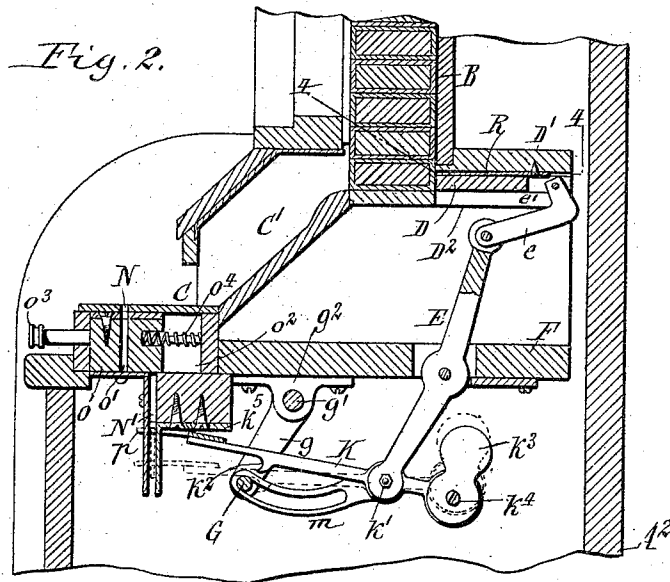
D. A. A. BUCK.

COIN CONTROLLED VENDING MACHINE.

(Application filed Jan. 19, 1900.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:
C. A. Volk.
F. F. Scherzinger.

Daniel A. A. Buck
By Wilhelm Wornier
Inventor.
Attorneys

UNITED STATES PATENT OFFICE.

DANIEL A. A. BUCK, OF MEDINA, NEW YORK.

COIN-CONTROLLED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 689,161, dated December 17, 1901.

Application filed January 19, 1900. Serial No. 2,011. (No model.)

To all whom it may concern:

Be it known that I, DANIEL A. A. BUCK, a citizen of the United States, residing at Medina, in the county of Orleans and State of New York, have invented new and useful Improvements in Coin-Controlled Vending-Machines, of which the following is a specification.

This invention relates to that class of coin-controlled vending-machines in which the articles or packages of goods—such as chewing-gum, confections, &c.—are successively removed from the lower end of a pile and delivered in reach of the purchaser by an ejector or delivery device which is normally locked or inoperative, but which can be actuated or becomes operative upon depositing a proper coin in the machine.

My invention has for its objects to simplify the construction and reduce the cost of the actuating and delivery devices of the machine, to render the mechanism certain in action, and to avoid the delivery of more than one package at a time.

In the accompanying drawings, consisting of three sheets, Figure 1 is a front elevation of my improved machine, a portion of the same being broken away and parts thereof shown in section. Fig. 2 is a fragmentary transverse vertical section of the machine, taken centrally through one of the package-compartments, showing the parts in their normal position. Fig. 3 is a similar section showing the position of the parts after having been actuated to deliver a package of goods. Fig. 4 is a fragmentary horizontal section in line 4 4, Fig. 2. Fig. 5 is a horizontal section in line 5 5, Fig. 1, looking upward. Fig. 6 is a transverse vertical section in line 6 6, Fig. 1. Fig. 7 is a transverse vertical section in line 7 7, Fig. 5.

Like letters of reference refer to like parts in the several figures.

The case is rectangular in form and comprises a base A, side walls A', a rear wall A², and a top plate A³. The upper half of the case contains the usual vertical compartments, receivers, or magazines B for the packages of goods. The lower portion of the case contains the package-delivery devices and their actuating mechanism and preferably extends forwardly a short distance beyond

the upper portion of the case to form a shelf or ledge C, upon which the packages are delivered.

C' represents forwardly-inclined delivery-chutes which lead from the lower ends of the package-compartments B to the rear portion of the receiving-ledge C, as shown in Figs. 1, 2, and 3. Each compartment is provided with such a delivery-chute. In the lower end of each package-compartment is arranged a horizontally-sliding ejector or delivery-slide D, which is guided between two horizontal boards or cross-pieces D' D² and is adapted to traverse the compartments, so that when the slide is shifted forwardly it pushes the lowermost package of the adjacent pile into the corresponding delivery-chute in a well-known manner. The cross-pieces D' D² extend from side to side of the machine and are secured to the side walls A'. Each of the delivery-slides D is actuated from an upright lever E, arranged below the cross-pieces D' D² and having its upper arm connected with the rear portion of the slide by a link e. The links e pass through longitudinal slots e', formed in the cross-piece D². The actuating-levers are pivoted to swing fore and aft of the machine and are fulcrumed on a horizontal cross-piece or deck F, secured at its ends to the side walls of the case.

G is a universal shifting rod or bar arranged transversely underneath the lower cross-piece F and suspended by arms g from a transverse rock-shaft g'. This shaft is supported in bearings g², secured to the under side of the cross-piece F, and the shaft and the universal rod G extend across the entire series of actuating-levers E. The rock-shaft g' is actuated by means of an upright hand-lever H, arranged at one side of the machine and having its lower arm connected with the adjacent rock-arm g of the rock-shaft by a rod h, so that upon pulling the upper arm of said hand-lever forwardly the universal rod G is swung rearwardly. As shown in Fig. 6, the hand-lever extends upwardly through a slot h', formed in the ledge C and terminates in a suitable handle.

I is a spring which tends to swing the universal rod G forwardly and which is secured at its ends to said rod and the under side of the ledge C.

J is a stop-link which is arranged adjacent to one of the carrying-arms g of the universal rod G and which limits the return stroke of said rod. This link is provided with a longitudinal slot j , through which the universal rod passes, and is secured at its rear end to a hanger j' , depending from the lower deck F.

Each of the actuating-levers E is operated from the universal bar G by a longitudinal coupling bar or lever K, which is connected with the lower arm of said lever and adapted to engage with or clear said universal bar, so as to cause the actuating-lever to take part in the rearward or effective stroke of the universal bar or remain at rest, according as said coupling-bar is in its operative or inoperative position. These coupling-bars are pivoted near their rear ends to the lower arms of the actuating-levers, as shown at k' , and each bar is provided on its under side with a hook or shoulder k^2 , which engages behind the universal rod when the bar K is depressed, thereby causing the bar to move rearwardly with the universal rod and swinging the corresponding actuating-lever E on its pivot. Each coupling-bar is provided in rear of its pivot with a weight k^3 , which tends to swing the long front arm of the bar upwardly. This weight is preferably oblong in form and adjustably secured near one end to the short rear arm of the coupling-bar by a clamping-screw k^4 , so that the weight may be turned rearwardly, more or less, for properly overbalancing the front arm of the coupling-bar. The weights k^3 normally raise the front arms of the coupling-bars sufficiently to allow their shoulders k^2 to clear the universal bar, and the upward movement of the bars is limited by cross-piece k^5 , secured to the side walls of the case.

m represents restoring-links which connect the lower arms of the actuating-levers E with the universal rod G, and whereby said levers and the delivery-slides D are returned to their normal positions when the universal bar is drawn forwardly by its return-spring I. Each of these links is provided with a longitudinal slot through which the universal rod G passes.

N represents coin-slots formed in the top plate of the ledge C opposite the respective package-compartments B, and N' represents coin-chutes secured to the under side of said ledge. Between each coin-slot and the corresponding chute is preferably arranged a horizontally-sliding coin carrier or block o , having a vertical slot o' , which registers with the coin-slot in the top plate of the ledge C when the block is in its normal outermost position, as shown in Fig. 2, and which registers with the coin-chute N' when the block is pushed to its innermost position, as shown in Fig. 3. These blocks are guided in chambers o^2 , formed in the ledge C, and each block is provided with a push-rod o^3 , which extends through the front wall of the chamber in which the block is guided.

o^4 represents springs which are interposed between the rear ends of the blocks o and the rear walls of their guide-chambers and which return the blocks to their normal positions after being pushed inward and released. The coin-slots N are arranged out of line with the coin-chutes, and the coin carriers or blocks o form cut-offs which normally close the mouths of the chutes, as shown in Fig. 1. Upon placing a coin in one of the slots N the same drops into the slot of the carrier, and upon pushing the carrier to its inner position its slot coincides with the chute, allowing the coin to drop into the latter.

The front arm of each coupling-bar K extends forwardly into the path of the descending coin dropped into the corresponding coin-chute N', so that the bar is tripped by the coin and depressed by the weight of the same to the coupling position shown by dotted lines in Fig. 2, in which position its shoulder engages behind the universal rod G. In the construction shown in the drawings the passage of the coin-chute is narrower than the coin which the machine is adapted to receive, and the chute is open at its sides, so that the coin projects laterally beyond the same, as shown in Fig. 1. Each coupling-bar is provided at its front end with a fork p , which embraces the coin-chute, and the arms of which are arranged in such close proximity to the open sides of the chute that they intercept and receive a coin dropped into the chute.

The operation of my improved vending-machine is as follows: In the normal position of the movable parts the coin-carriers o are in their outermost position, in which their slots register with the coin-slots N of the ledge C, the universal rod G is in its forward position, in which it holds the delivery-slides D in their retracted position, and the coupling-bars K are elevated against the under side of the cross-piece k^5 by their weights k^3 , so that their shoulders k^2 clear the universal rod, as shown in Fig. 2. Upon depositing a proper coin in one of the slots N and pushing the corresponding coin-carrier inwardly to the position shown in Fig. 3 the coin drops into the coin-chute N', strikes the fork p of the adjacent coupling-bar K, and depresses the latter to the coupling position shown by dotted lines in Fig. 2. The operator now pulls the hand-lever H forwardly, which movement causes the universal rod G to swing rearwardly. The universal rod striking the shoulder k^2 of the depressed coupling-bar shifts this bar rearwardly, and the bar in turn swings the corresponding actuating-lever E to the position shown in Fig. 3, thereby advancing the delivery-slide controlled by said lever and pushing the lowermost package in the adjacent compartment B into the delivery-chute C'. As soon as the shoulder of the operative coupling-bar K recedes from the coin-chute N' by the rearward movement of said bar the coin is released and drops into a box or tray q , placed

in the bottom of the case. The restoring-link *m* of the actuated lever *E* also follows the rearward movement of the lower arm of this lever and assumes the position shown in Fig. 3. Upon releasing the hand-lever *H* the spring *I*, which has been strained by the rearward movement of the universal rod *G*, reacts and returns this rod to its former position. The universal rod coming in contact with the front end of the slot of the restoring-link *m* draws the latter forwardly, thereby swinging the actuating-lever to the reversed position shown in Fig. 2 and retracting the delivery-slide preparatory to ejecting the next package of goods. During the forward movement of the universal rod the coupling-bar *K*' is released therefrom and the weight *k*³ of this bar swings its front arm upwardly to the dotted position shown in Fig. 3, thereby automatically disengaging the bar from the universal rod. In order to permit of this release of the hook or shoulder *k*² of the coupling-bar from the universal rod, the universal rod has sufficient forward play or dead movement in the slotted restoring-link *m* to allow the rod to clear said hook or shoulder before the rod strikes the front end of the slot of the link and shifts the link forwardly. As soon as the universal rod begins this movement the weight *k*³ swings the shouldered front arm of the coupling-bar upwardly to its uncoupled position. The stop or cross-piece *k*⁵ is of sufficient width to limit the upward movement of the coupling-bar in all positions of the same.

By making the weights *k*³ movable on the coupling-bars they can be nicely adjusted to properly overbalance the long front arms of the bars and at the same time permit the depression of said arms by the deposited coins.

When the universal rod *G* is shifted rearwardly, the friction between the same and the restoring-links *m* is liable to cause said links to move with the universal rod, and should this occur goods will be delivered to the machine without the deposit of a coin. To prevent this, an elastic horizontal friction-plate or spring-finger *R* is arranged to bear upon each delivery-slide *D*, as shown in Fig. 4, so as to check the movement of the slides and allow only that slide to move forwardly which is positively actuated. The retarding-plates *R* are arranged between the upper side of the delivery-slides and the under side of the upper cross-piece *D'* and are secured near the rear edge of said cross-piece, so that the front portion is free to exert a downward pressure upon the slides.

The slots of the restoring-links are made of sufficient length to allow the universal rod *G* to move rearwardly idly in the restoring-links of the unactuated levers *E*.

In this machine it might be attempted to secure the delivery of goods without first depositing a coin by simply operating the hand-lever *H* and allowing the universal rod *G* to snap against the front ends of the slots of the

restoring-links *m*, with a view of causing the coupling-bar *K* to whip downwardly into engagement with the universal rod. To defeat this practice, I employ the stop-link *J*, which is made of such a length that when the restoring-links are in their normal forward position, as shown in Fig. 1, the universal rod is arrested by the front end of the slot of the stop-link before coming in contact with the front ends of the slots of the restoring-links, as shown in Fig. 7. By this construction the jar or impact of the universal rod during its return stroke is received by the stop-link, thereby relieving the restoring-links and connecting parts and preventing the above-described action of the coupling-bar.

In the drawings five package-compartments are shown; but a greater or less number may obviously be employed, if desired.

My improved actuating and delivery mechanism comprises comparatively few parts, rendering the same simple and inexpensive, and the same is reliable in action and contains no parts which are liable to get out of order.

I claim as my invention—

1. The combination with a coin-chute, a compartment or magazine and an ejecting device, of an actuating-lever connected with said ejecting device, a shifting-rod movable toward and from said lever, a hand-lever for actuating said shifting-rod, and a vertically-movable coupling-bar pivoted to said actuating-lever, adapted to move into and out of engagement with said shifting-rod and arranged adjacent to the passage of the coin-chute whereby said bar is depressed by the coins deposited in said chute, substantially as set forth.

2. The combination with a coin-chute, a compartment or magazine and an ejector, of an actuating-lever connected with said ejector, a shifting-rod movable toward and from said lever, a slotted link connecting said lever with said shifting-rod, and a vertically-swinging coupling-bar pivoted to said actuating-lever arranged to be depressed by the coins deposited in the coin-chute and provided with a hook or shoulder which engages with said shifting-rod when the coupling-bar is depressed, substantially as set forth.

3. The combination with a coin-chute, a compartment or magazine and an ejector, of an actuating-lever connected with said ejector, a shifting-rod movable toward and from said lever, a slotted link connecting said lever with said shifting-rod, a vertically-swinging coupling-bar pivoted to said actuating-lever, arranged to be depressed by the coins deposited in the coin-chute and provided with a hook or shoulder which engages with said shifting-rod when the coupling-bar is depressed, and a pivoted weight which is adjustably secured to said coupling-bar, substantially as set forth.

4. The combination with a coin-chute, a compartment or magazine and an ejector, of

an actuating-lever connected with said ejector, a shifting-bar movable toward and from said lever, a vertically-movable coupling-bar connected with said actuating-lever, adapted to move into and out of engagement with said shifting-bar and arranged adjacent to the passage of the coin-chute, whereby said bar is depressed by the coins deposited in said chute, and a restoring slotted link connecting said lever with said shifting-bar, substantially as set forth.

5. The combination with a coin-chute, a compartment or magazine and an ejector, of an actuating-lever connected with said ejector, a shifting-rod arranged in front of said lever and movable toward and from the same, a vertically-swinging coupling-bar pivoted to said lever arranged adjacent to the passage of the coin-chute, and having a hook or shoulder adapted to engage behind said shifting-rod, and a restoring-link connected with said lever and having a longitudinal slot through which said shifting-rod passes, said rod having a sufficient forward play or dead movement in said slot to clear the shoulder of said coupling-bar before coming in contact with the front end of the slot, substantially as set forth.

6. In a vending-machine, the combination with a coin-chute, a compartment or magazine for the goods, and an ejector, of an upright actuating-lever fulcrumed between its ends and connected with said ejector, a horizontal rock-shaft having rock-arms, a shifting-rod carried by said arms, a hand-lever

connected with said shifting-rod, and a vertically-swinging coupling-bar pivoted to the lower arm of said actuating-lever and provided on the front side of its pivot with a shoulder adapted to engage with said shifting-rod and in rear of its pivot with a weight which tends to swing the coupling-bar out of engagement with the shifting-rod, the front end of said coupling-bar being arranged adjacent to the coin-chute, substantially as set forth.

7. The combination with a series of coin-chutes, compartments or magazines for the goods, and ejectors for said compartments, of actuating-levers connected with said ejectors, a universal shifting-rod arranged transversely in front of said actuating-levers and movable toward and from the same, slotted links connecting said actuating-levers with said shifting-rod, vertically-swinging coupling-bars pivoted to said actuating-levers, adapted to be moved into and out of engagement with said shifting-bar and arranged adjacent to the passage of the coin-chutes whereby said coupling-bar is depressed by the coin deposited in a chute adjacent to said bar, and a hand-lever whereby said shifting-bar is actuated, substantially as set forth.

Witness my hand this 11th day of January, 1900.

DANIEL A. A. BUCK.

Witnesses:

JOHN W. CARD,
GEORGE M. WINEGAR.